

## REMARKS

Applicants appreciate the Examiner's thorough review of the present application, and respectfully request reconsideration in light of the preceding amendments and the following remarks.

Claims 1-20 are pending in the application. Claims 1-9 have been amended. Claims 10-20 have been added to provide Applicants with the scope of protection to which they are believed entitled. No new matter has been introduced through the foregoing amendments.

The specification has been amended in the manner kindly suggested by the Examiner in paragraph 1 of the Office Action, as shown in the attached Substitute Specification. Applicants respectfully submit that the Substitute Specification does not contain prohibited new matter.

Fig. 2 has been revised to reverse the winding direction of the second coil 27''a to be opposite to the winding direction of the coil 27''b, as originally disclosed and claimed. Applicants respectfully submit that amended Fig. 2 does not introduce new matter.

The objections to the drawings and claims are believed overcome in view of the above amendments.

The 35 U.S.C. 103(a) rejection of claims 1-9 as being obvious over Applicant's Admitted Prior Art (APA) in view of Tokuda (U.S. Patent No. 5,578,981) is *traversed* because the Examiner's rationale behind the rejection is inappropriate. More particularly, the Examiner alleges in paragraph 4 of the Office Action that it would have been obvious for a person of ordinary skill in the art to have substituted the coil array of Tokuda, which appears to have coils wound in opposite directions, in place of the coil array of APA to reduce cross-talk. Applicants respectfully disagree.

Tokuda discloses a laminated inductor comprising a plurality of coil sections which are composed of laminating insulating layers and coil conductors alternatively, the two adjacent coil sections being **staggered** either in the vertical direction or in the horizontal direction to decrease a cross talk between adjacent coil sections. *See* column 1, lines 41-47 of Tokuda. Thus, the cross-talk, which is caused by the inductive coupling and capacitive coupling between the coil sections, becomes smaller. The primary teaching of Tokuda with respect to cross-talk reduction is to increase the spacing between the adjacent coils. *See* column 1, line 45 of Tokuda.

Although, Tokuda also discloses, in Fig. 1, an inductor array with an inductor portion 2a coiled in a clockwise direction and an adjacent inductor portion 2b coiled in a counter-clock wise direction, the patent is completely silent on what advantage such an arrangement might provide or whether such an arrangement contributes at all to the cross-talk reduction effect.

Accordingly, a person of ordinary skill in the art, who wishes to reduce cross-talk between adjacent coils of the APA array in the manner taught by Tokuda, would have been at best led to staggering the positions of the APA coils, either in the horizontal or vertical direction or both, without successfully arriving at the claimed invention. The person of ordinary skill in the art would *not* have been motivated to wind the second coils of the APA array in opposite directions as presently claimed, because Tokuda, APA and the knowledge generally available in the art do not teach or suggest what would be the benefit of such a modification.

For the reason advanced immediately above, the 35 U.S.C. 103(a) rejection of claims 1-9 is inappropriate and should be withdrawn.

Nevertheless, solely for the purpose of expediting prosecution, Applicants have amended independent claims 1 and 9 to better define the claimed invention, and further distinguish the invention over the art. Amended independent claims 1 and 9 now require that **the first coils of the inductance portions be wound in the same direction**, and the second coils of the inductance portions be wound in opposite directions. In this structure, the mutual inductance induced between the first coils is offset or at least partially compensated for by the mutual inductance induced between the second coils, and whereby the electromagnetic interference is greatly minimized. *See* page 10, lines 10-21 of the specification. The above feature and advantage of the invention are neither found in nor suggested by the applied art of record, especially Tokuda.

In particular, as can be seen in Fig. 1 of Tokuda, the *entire* coil 2b is wound in one direction and the *entire* coil 2a is wound in the opposite direction. Thus, coils 2b and 2a are entirely wound in opposite directions. The coils 2a and 2b of Tokuda do not have any portions that are wound in the *same* direction as additionally recited in claims 1 and 9.

Independent claims 1 and 9 are thus patentable over the applied art of record. Claims 2-8 and new claims 10-14 are dependent on claim 1 and should be considered patentable as well.

New independent claim 15 is patentable over the arrangement because the art fails to disclose, teach or suggest the claim limitation that a first mutual inductance induced between the

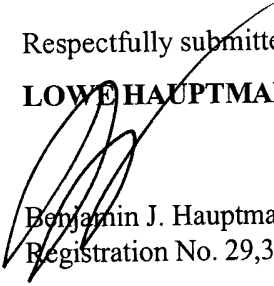
first coils and a second mutual inductance induced between the second coils have **opposite signs**. This feature finds solid support in the original disclosure, especially Fig. 3. In contrast, the art teaches/suggests the opposite structure with the mutual inductances induced between the first and second coils, respectively, having the *same* sign, as can be seen, e.g., in Fig. 1 of Tokuda. Thus, EMI between the inductance portions cannot be greatly reduced as it is the case with the present invention. New claims 16-20 depend from claim 15 and should be considered patentable over the applied art of record for the same reason.

Each of the Examiner's rejections has been traversed/overcome. Accordingly, Applicants respectfully submit that all claims are now in condition for allowance. Early and favorable indication of allowance is courteously solicited.

The Examiner is invited to telephone the undersigned, Applicant's attorney of record, to facilitate advancement of the present application.

Respectfully submitted,

**LOWE HAUPTMAN GILMAN & BERNER, LLP**



Benjamin J. Hauptman  
Registration No. 29,310

USPTO Customer No. 22429  
1700 Diagonal Road, Suite 300  
Alexandria, VA 22314  
(703) 684-1111  
(703) 518-5499 Facsimile  
Date: March 21, 2003  
BJH/lcw